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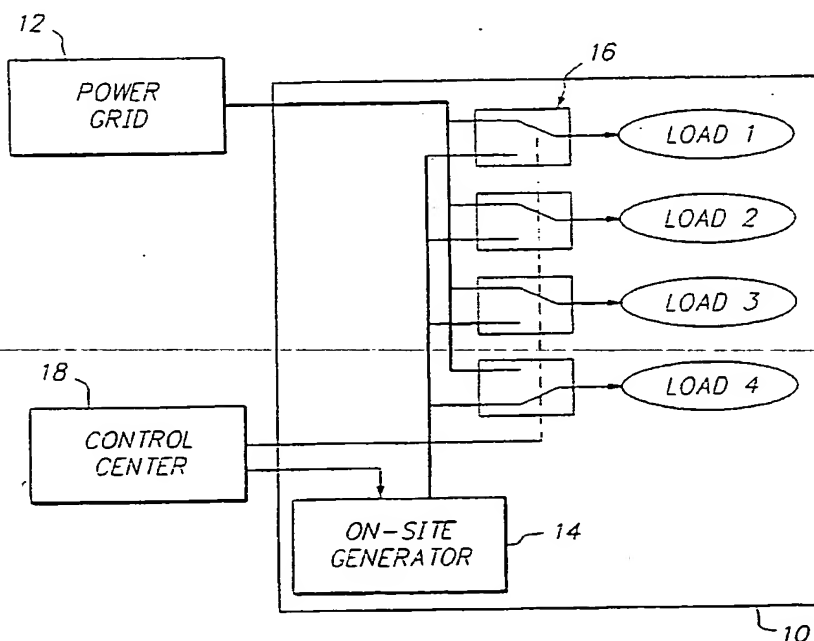
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- (71) Applicant (for all designated States except US): **SOLO ENERGY CORPORATION** [US/US]: Suite 210, 2701 Monarch Street, Alameda, CA 94501 (US).
- (72) Inventors; and
(75) Inventors/Applicants (for US only): **LAGOD, Martin** [US/US]: 267 Catalpa Drive, Atherton, CA 94027 (US). **ALDRICH, Robert, G.** [US/US]: 3 Alverno Court, Redwood City, CA 94061 (US). **GUETTEL, Alexander** [US/US]: Apartment 5H (Hudson), 345 West 13th, New York, NY 10014 (US).
- (74) Agent: **PETERSON, James, W.**; Burns, Doane, Swecker & Mathis, LLP, P.O. Box 1404, Alexandria, VA 22313-1404 (US).
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[Continued on next page]

(54) Title: **ENERGY MANAGEMENT SYSTEM WHICH INCLUDES ON-SITE ENERGY SUPPLY**



(57) Abstract: An energy management system includes one or more electric power generators (14) located at or near a consumer's premises (10), to provide power which is dedicated to the needs of that consumer. The power provided by the on-site generators (14) complements that which is delivered via a centralized power grid network (12). In the event that the power grid (12) is disabled, or is otherwise unable to provide adequate power to the consumer (10), the on-site generators (14) are switched to provide power-to-critical-equipment. In one embodiment, a computer-driven control facility (18) selectively actuates the on-site generator (14) to intelligently arbitrage between the locally generated power and that which is provided via the grid network, based on a variety of factors. The instantaneous cost of power supplied via the grid network is compared against stored costs of operating the on-site generators, such as the price of fuel required to run the

generators, maintenance expenses, other types of service and installation expenses, and finance charges. When these costs are less than the charges for the power provided by the grid network, the central control system actuates the on-site generators, to partially or totally replace power delivered via the grid. Other factors are also employed in the decision whether to activate the on-site generators, such as data relating to weather conditions and peak usage periods. Historical data regarding the consumer's power usage is employed to predict times when the usage requirements are likely to be high, and thereby actuate the generators to supplement or replace the power provided from the grid.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 00 41288 A (HUSSMANN CORP) 13 July 2000 (2000-07-13) page 12, line 12 -page 14, line 9; figure 3 ---	1, 3-11
X	WO 97 35374 A (WILHELM WILLIAM G ; NEXTEK POWER SYSTEMS INC (US)) 25 September 1997 (1997-09-25) page 20, line 12 -page 21, line 15 page 12, line 19 -page 13, line 3; figure 2 ---	1
X	WO 99 60687 A (SURE POWER CORP) 25 November 1999 (1999-11-25) page 14, line 14 - line 30; figure 5 --- -/--	1

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Gentili, L

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 5 880 536 A (MARDIROSSIAN ARIS) 9 March 1999 (1999-03-09) the whole document -----</p>	1-45

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0041288	A	13-07-2000	US 6067482 A AU 5491499 A WO 0041288 A1	23-05-2000 24-07-2000 13-07-2000
WO 9735374	A	25-09-1997	CA 2248075 A1 CN 1217095 A US 5500561 A WO 9735374 A1 AU 712660 B2 AU 5529096 A BR 9612557 A EP 0888659 A1 JP 2000507080 T US 5786642 A US 5803754 A US 5969435 A	25-09-1997 19-05-1999 19-03-1996 25-09-1997 11-11-1999 10-10-1997 28-12-1999 07-01-1999 06-06-2000 28-07-1998 08-09-1998 19-10-1999
WO 9960687	A	25-11-1999	AU 3997399 A CN 1301424 T EP 1104591 A1 NO 20005823 A WO 9960687 A1 US 6288456 B1 US 2001001051 A1	06-12-1999 27-06-2001 06-06-2001 17-01-2001 25-11-1999 11-09-2001 10-05-2001
US 5880536	A	09-03-1999	US 6084318 A US 6208040 B1	04-07-2000 27-03-2001

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